Shorea leprosula - 64

Jøker, Dorthe

Published in:
Seed Leaflet

Publication date:
2002

Document version
Publisher's PDF, also known as Version of record

SEED LEAFLET

No.64 January 2002

Shorea leprosula Miq.

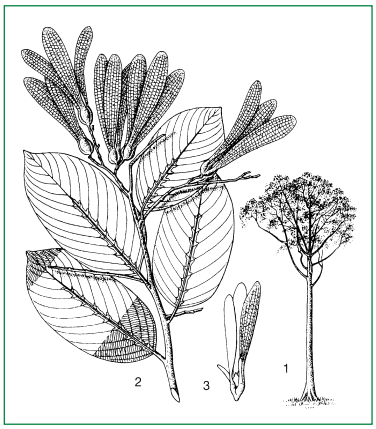
Taxonomy and nomenclature

Family: Dipterocarpaceae

Synonyms: *Hopea maranti* Miq., *Shorea maranti* Burck, *S. astrostricta* Scort. ex Foxw.

Vernacular/common names: meranti tembaga (Brunei Darussalam); meranti tembaga (Indonesia); kontoi bayor, lempong kumbang (Kalimantan); meranti tembaga (Malaysia); seraya tembaga (Sabah); meranti pusuh (Sarawak); saya-daeng, ta yom (Thailand); light red meranti (trade name).

Related species of interest: the genus *Shorea* comprises 375 species and is one of the most important timber genus in tropical Asia.



1, Tree habit; 2, foliage and fruit; 3, fruit. (Soerianegara and Lemmens, 1993)

Distribution and habitat

The area of natural distribution is from Peninsular Thailand, throughout Peninsular Malaysia and Sumatra, to North Kalimantan. It is a common species in the lowland dipterocarp forests below 700 m altitude where it colonises gap openings in disturbed forests.

It can grow on a variety of soils but does not tolerate waterlogged sites, especially peat soils. Rainfall of 1500-3500 mm per year and short dry periods are conducive for its growth and regeneration. It is seldom found on ridges and plantation trials have shown that it grows better in the foothills than on ridge tops. It is the fastest growing red meranti up to the twentieth year but is later surpassed by other species.

The species has suffered a massive population reduction mainly because of the rates of exploitation of its timber and on the IUCN Red List it is categorised as endangered.

Uses

The timber is classified as light hardwood and has a density of 0.3–0.55 g/cm^3. It is valuable and excellent for e.g. joinery, furniture, panelling, flooring and ceiling and it is also used for plywood manufacture. It produces a resin known as 'damar daging', which is used in medicine, and the bark is used for tannin production.

Botanical description

Tree up to 60 m tall and 1 m in diameter with clear bole up to 35 m. Buttresses are prominent, but usually not very large. The crown is wide, umbrella-shaped and characteristically yellowish brown. Bark greyish brown, shallowly fissured; sapwood is pale, heartwood dark red.

Leaves elliptic to ovate, 8-14 cm long, 3.5-5.5 cm wide. Lower leaf surface is cream scaly and most of length of midrib beset with domatia at least in young trees; tertiary veins forming a densely ladder-like structure.

Flowers small with pale yellow corolla, petals narrow and incurved like a clutching hand.

Fruit and seed description

The fruit is a nut enclosed in the enlarged calyx lobes. Calyx is sparsely pubescent with 3 longer lobes up to 10 cm long and 2 cm wide, spatula-like and 2 shorter lobes up to 5.5 cm long, 0.3 cm wide. The nut is about 2 cm long, 1.3 cm in diameter, ovoid, pubescent and with a sharp pointed end from the remains of the style.

The unit for sowing and testing is the fruit and the lower part of the calyx that is left after the wings have been removed. There are 1300-2100 dewinged fruits per kg.

Flowering and fruiting habit

Flowering normally occurs every three to five years. In years with flowering, most trees flower heavily and at the same time.

The flowers open in the evening. They are strongly scented and are pollinated by flower thrips. The fruits are ripe some 14 weeks after flowering. If a dry spell occurs during this period, fruit fall is delayed and the fruits are not well developed.

In the area of natural distribution, collection takes place in March-July, typically a few months after a prolonged dry period.

Harvest

To minimise insect attacks it is best to collect the seed directly from the tree. Collection should preferably be carried out after a preliminary fall, as early falling seeds are often immature and attacked by insects.

Processing and handling

Because of a very high moisture content (almost 50%) at the time of collection, the seed does not tolerate temporary storage and must be transported to the processing site as quickly as possible. During transport the fruits should be kept in open bags and with only small amounts in each bag. The bags should be protected from direct sun and, to avoid overheating, must not be stacked or packed too tightly.

At the processing site the wings are removed manually and the fruits are dried in the shade.

Storage and viability

Preliminary results indicate that the seeds tolerate drying to 25-30% moisture content with little loss in viability. However, it is not certain what affect the lower moisture content has on storage time. The general recommendation is to sow the seeds as soon as possible after harvest.

Dormancy and pretreatment

The seed is not dormant and no pretreatment as such is needed but it is recommended to soak the seed in water overnight before sowing.

Sowing and germination

The seeds are sown in seedbeds where they are covered with a mixture of sand and soil (1:1) or with a thin layer of sawdust. About two weeks after germination when the seedlings are 5-6 cm tall they are transferred to containers. The containers should be about 15 x 23 cm and punched at the bottom.

It is unclear to what extent infection by mycorrhiza improves seedling development but it is normally recommended to use a mixture of forest soil and sand (3:1) as potting medium. The seedlings are placed in 50-60% sunlight and watered twice daily.

Weeding must be carried out at one or two months' intervals. The weeds should be removed carefully to avoid damage to the seedlings root system. One month after potting, 0.5-1.0 g of compound fertiliser per seedling is applied. After 5-8 months the monthly application can be increased to 2.0 g fertiliser per seedling.

When the seedlings are 30-40 cm tall they are ready for planting in the field. Before planting out the seedlings must be hardened in full sunlight for at least one month.

Selected readings

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Tree habit: Tree in Bukit Ceraka Forest Reserve, Selangor, Malaysia. Photo: L.G. Saw.

THIS NOTE WAS PREPARED BY
DANIDA FOREST SEED CENTRE

Author: Dorthe Jøker

Danida Forest Seed Centre
Krogerupvej 21
DK-3050 Humlebaek
Denmark

Phone: +45-49190500
Fax: +45-49160258
Email: dfsc@sns.dk
Website: www.dfsc.dk